

ABSTRACT

**APPARATUS AND PROCESS FOR PRECISE ENCAPSULATION OF FLIP CHIP
INTERCONNECTS**

A method for encapsulating flip chip interconnects includes applying a limited quantity of encapsulating resin to the interconnect side of an integrated circuit chip, and thereafter bringing the chip together with a substrate under conditions that promote the bonding of bumps on the interconnect side of the chip with bonding pads on the substrate. In some embodiments, the step of applying resin to the chip includes dipping the interconnect side of the chip to a predetermined depth in a pool of resin, and then withdrawing the chip from the resin pool. In some embodiments the step of applying resin to the chip includes providing a reservoir having a bottom, providing a pool of resin in the reservoir to a shallow depth over the reservoir bottom, dipping the chip into the resin pool so that the bumps contact the reservoir bottom, and then withdrawing the chip from the resin pool. Also, apparatus for applying a precise volume of encapsulating resin to a chip, includes a reservoir having a bottom, and means for dispensing a pool of encapsulating resin to a predetermined depth over the reservoir bottom.